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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,199	02/24/2004	Masahiko Ito	15-046	9253
23400	7590	03/15/2007	EXAMINER	
POSZ LAW GROUP, PLC			KITOV, ZEEV V	
12040 SOUTH LAKES DRIVE			ART UNIT	PAPER NUMBER
SUITE 101			2836	
RESTON, VA 20191				
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	03/15/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/784,199	ITO, MASAHIKO
	Examiner Zeev Kitov	Art Unit 2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 February 2007.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1 - 10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1 - 10 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 24 February 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. _____.
3) Information Disclosure Statement(s) (PTO/SB/08) 5) Notice of Informal Patent Application
Paper No(s)/Mail Date. _____.
6) Other: _____.

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on February 16, 2007. Claim 1 is amended. New Claims 8 – 10 are added.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. A reason for that is in a following limitation: "the reference voltage source is a variable voltage source". The Specification failed to disclosed a way to make the reference voltage source the variable voltage source. Paragraph [0023] recites changing "the predetermined voltage level at which the protecting switch SW is switched from ON to OFF or OFF to ON can be arbitrarily set by changing the divider resistors 53, 53 or the reference voltage Vos". However, it is different from changing the reference voltage, which is set by the value of the battery voltage (Vos in Fig. 2 – 5). Examiner contends that varying the value of the resistive divider cannot change the reference voltage. One

of ordinary skill in the art would not be able to reproduce and practice the invention according to Claim 10 limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 5, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon (US 3,428,820) in view of Takemoto et al. (US 5,703,412). Regarding Claim 1, Lyon discloses a power source (14 in Fig. 1, 2); a voltage comparator (58, 62, 64 and vertical NPN transistor connected to the base of 52 in Fig. 2) connected to the power source for comparing a voltage of the power source with a predetermined reference voltage (58 in Fig. 2) and for outputting a control signal (the vertical transistor not marked in Fig. 2 but indicated in Specification as #60, transistor 60 switches ON) when the power source voltage is higher than the reference voltage (voltage drop across the zener); and a protecting switch (52 in Fig. 2) disposed in a circuit between the power source and the electrical circuit (load connected to terminal 22 in Fig. 2), the protecting switch being turned off when the control signal is supplied from the voltage comparator to the protecting switch, thereby protecting the electrical circuit from overvoltage (col. 4, lines 53 – 70). It further discloses the voltage divider (potentiometer 48 in Fig. 1 and 2) used for sampling the measured voltage. However, it does not disclose the voltage

divider composed of two separate resistors connected between the voltage source and the ground. Takemoto et al. disclose the voltage divider composed of two separate resistors (6 and 7 in Fig. 1) connected between the voltage source and the ground with the output (V1 in Fig. 1) taken for comparison from an intermediate node between the resistors. The reference has the same problem solving area, namely providing an over-voltage protection for the electronic parts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Lyon reference by replacing the potentiometer by two separate resistors according to teachings of Takemoto et al., because as well known in the art two a cost of two separate resistors is smaller than the cost of potentiometer and the reliability of the separate resistors is considerably higher than that of the potentiometer.

Claim 2 differs from Claim 1 by its limitation of having a voltage booster. Takemoto et al. disclose the vehicle occupant protection system having the voltage booster (Fig. 1) disposed in a circuit connecting the power source (2 in Fig. 10 and the electrical load circuit (airbag system). It further recognizes necessity to protect the electrolytic capacitor (4 in Fig. 1) against over-voltages and provides his solution to resolve the problem (by discharging capacitor through transistor 9 in Fig. 1, col. 4, lines 35 – 59). The reference has the same problem solving area, namely providing an over-voltage protection for the electronic parts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Lyon according to teachings of Takemoto et al. by using Lyon's overvoltage protection solution in the Takemoto et al. system because (I) the capacitor in the Takemoto et al. circuit carries

the boosted high voltage and Takemoto et al. recognizes necessity to protect the capacitor against over-voltages, and (II) the capacitor in Takemoto et al. circuit carries high voltage and accumulated high value of the charge; its discharge requires use of relatively expensive high voltage and high current transistor, while in the Lyon circuit for disconnection of the stabilized low power supply voltage (which according to Fig. 2 schematic, is lower than the battery voltage), there is no special high voltage and high current requirements. Additionally, such modification will provide extended market niche for manufacturers of the Lyon's system.

Regarding Claim 3, in the Takemoto et al. circuit modified according to teachings of Lyon, the protecting switch is disposed between the power source and the voltage booster. The motivation for such placement of the protecting switch is the same as above.

As per Claims 4 and 5, they require placement of the protective switch in the voltage booster (Claim 4) or between the voltage booster and the load (Claim 5). The criticality of such placement is not disclosed. Neither any advantage of such placement is provided. Therefore, it is considered as mere reversal of parts or integration of the protecting switch into the booster. It would have been obvious to one of ordinary skill in the art at the time the invention was made to move the protecting switch into the voltage booster, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the protective

switch into the voltage booster, since it has been held that forming in one piece an article, which has formerly been formed in two pieces and put together involves only routine skill in the art. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) Court stated: "the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."

Additionally regarding Claim 5, Takemoto et al. disclose placement of the protective switch (9 in Fig. 1) between the voltage booster (1 in Fig. 1) and the load. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Lyon solution by placing the protective switch between the voltage booster and the load, because in such case the protective switch action (discharge of the protected capacitor) provides the faster and therefore better protection for the capacitor, rather than the circuit with the switch placed upstream of the voltage booster, since in such case, disconnection of the power supply from the voltage booster does not immediately removes the high voltage from the capacitor (due to delays in the voltage booster).

Regarding Claim 7, Takemoto et al. discloses the airbag system (col. 1, lines 7 – 34). As to inflating the airbag with gas upon detection of a collision and igniting device for generating the gas, all these attributes are inherent in the modern airbag system. The Baumgartner et al. (US 6,717,289) reference is used only to demonstrate that the listed elements are inherent in the modern airbag system. Baumgartner et al. list the acceleration sensor (20 in Fig. 1) detecting the collision, igniting circuit (12 and 14 in Fig. 1) for igniting a device for generating the gas, and the electrical power supply,

including battery (28 in Fig. 3 and voltage booster (40 in Fig. 1). All the listed items do not require further modification of the previously introduced reference (Takemoto et al.), since they are inherent in the structure of the airbag system. As to use of the Takemoto et al. reference to modify the primary reference (Lyon), the motivation was given above.

Regarding Claim 8, Takemoto et al. discloses the fixed resistors voltage divider (6 and 7 in Fig. 1). However, it does not disclose at least one variable resistor. Lyon discloses the variable resistor (potentiometer (48 and 48' in Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Lyon solution by making one of two separate resistors variable according to teachings of Takemoto et al., because according to Court Decision *In re Stevens*, 212 F.2d 197, 101 USPQ 284 (CCPA 1954), the court held that adjustability, where needed, is not a patentable advance, and because there was an art-recognized need for adjustment in a fishing rod, the substitution of a universal joint for the single pivot of the prior art would have been obvious.

Regarding Claim 9, Lyon discloses a reference voltage source (44 in Fig. 1, 54 and 58 in Fig. 2) providing the reference voltage.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon in view of Takemoto et al. and Brkovic (US 5,940,287). As per claim 6, it differs from Claim 4 rejected above by its limitation of some schematic details of the voltage booster. Brkovic discloses the switching voltage converter (Fig. 8) having a booster coil (transformer coils 820, 824, 828 in Fig. 8), the switches (830, 834 in Fig. 8) for switching

current flowing through the transformer at a high speed, and the rectifying diodes (840 and 844 in Fig. 8), synchronous rectifiers playing a role of the rectifying diodes and allowing current to flow only in one direction from the transformer coils (824 and 844 in Fig. 8) to the electrical load (860 in Fig. 8). The synchronous rectifiers (840 and 844 in Fig. 8) are also used as protecting switches. According to Brkovic, when the switching converter is disabled following detection of one of the abnormal conditions (col. 1, line 32 – col. 2, line 12), the synchronous rectifiers (840 and 844 in Fig. 8) are disconnected (col. 9, lines 36 – 46) to prevent damage to the converter. The reference has the same problem solving area, namely providing the voltage conversion and protecting the voltage converter against abnormal conditions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the Lyon solution by using the voltage booster (converter) with synchronous rectifiers according to teachings of Brkovic, because of well known advantages of the synchronous rectifiers, such as higher efficiency than the normal converter with rectifying diodes.

Response to Arguments

Applicant's Arguments have been given careful consideration but they are now moot in view of new ground of rejection.

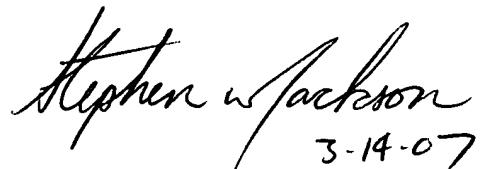
Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (571) 273-8300 for all communications.

Z.K.
3/6/2007



3-14-07

STEPHEN W. JACKSON
PRIMARY EXAMINER